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EXAMINER
CHEN, CHONGSHAN

ART UNIT	PAPER NUMBER
2162	

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/784,392	PEDERSON ET AL.
	Examiner	Art Unit
	Chongshan Chen	2162

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2004*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-43* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

1.   In view of the appeal brief filed on 23 September 2004, PROSECUTION IS HEREBY

REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following

two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37

CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a

supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or

other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3.   This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4.   Claims 1-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tada et al.

(hereinafter "Tada" 5,544,359) in view of Gray, J. and Reuter (hereinafter "Gray", Gray, J. and

Reuter, A. "Transaction Processing: Concepts and Techniques", Morgan-Kaufman, CA. 1993).

As per claim 1, Tada discloses a method of performing a transaction in a database

system, comprising:

receiving a transaction to be performed (Tada, col. 1, lines 23-27);

performing a flush of a transaction log from volatile storage to non-volatile storage by an

access module before an end transaction procedure (Tada, Fig. 5, col. 11, line 30 – col. 12, line 3,

the flush operation S10 is performed before the end transaction procedure S14).

Tada does not explicitly disclose the transaction is processed by a plurality of access

module. However, Tada disclose the system includes two log buffers (Tada, Fig. 4, 114a, 114b)

and two databases (Tada, Fig. 4, 119a, 119b, col. 8, line 44 – col. 8, line 67) and perform

transaction on the databases (Tada, Fig. 4). Furthermore, Gray teaches a distributed database

system and distributed processing in which the transaction is performed and flushed by plurality

of access modules (Gray, page 34, 48, 202-203, 248-249, 530-531, 562-574). Therefore, it

would have been obvious to one of ordinary skill in the art at the time the invention was made to

modify the database system of Tada by incorporating the distributed system and flushing the

transaction in a plurality of access modules as disclosed by Gray. Because the work in a

distributed system is divided and distributed to a plurality of processing nodes, this improves the

processing speed and reduces the processing time. The ordinary skilled artisan would have been

motivated to modify the database system of Tada and process the transaction in a plurality of

access modules for the purpose of improving processing speed and reduce processing time.

As per claim 2, Tada and Gray teach all the claimed subject matters as discussed in claim

1, and further teach issuing a request to flush the transaction log with a message sent (Tada, Fig.

5, step S06) to each access module for performing a last step of the transaction (Tada, Fig. 5, step

11), the last step performed prior to the end transaction procedure (Tada, Fig. 5, the last step of

transaction S11 checks whether the logs are flushed before the end transaction procedure S14).

As per claim 3, Tada and Gray teach all the claimed subject matters as discussed in claim

2, and further teach performing the flush of the transaction log in a data access step prior to the

end transaction procedure to avoid performance of a transaction log flush in the end transaction

procedure (Tada, Fig. 5, the flush S10 is performed before the end transaction procedure S14.

Since the logs are flushed before the end transaction S14, S14 initializes the transaction end

indication and avoids the flush again).

As per claim 4, Tada and Gray teach all the claimed subject matters as discussed in claim

2, and further teach determining that the last step (Tada, Fig. 5, S11, S11-1) is being performed

by all of the plurality of access modules involved in the transaction (Tada, col. 11, 46-55, step

S11 and S11-1 determines whether all logs are flushed; Gray, 561-574).

As per claim 5, Tada and Gray teach all the claimed subject matters as discussed in claim

1, and further teach determining if the transaction log has been flushed before performing the end

transaction procedure (Tada, Fig. 5, col. 11, lines 47-67, in figure 5, step 11 and S11-1 checks

whether the log has been flushed before performing the end transaction procedure S14).

As per claim 6, Tada and Gary teach all the claimed subject matters as discussed in claim

5, and further teach avoiding performance of a transaction log flush in the end transaction

procedure if the transaction log has been flushed (Tada, Fig. 5, the flush is performed at step S10

which is before the end transaction step S14. S14 just initializes the transaction end indication

and avoids the flush again; Gray, 561-574, 592-609, 643-646).

As per claim 7, Tada and Gray teach all the claimed subject matters as discussed in claim

1, and further teach performing database transaction, which inherently includes an implicit

transaction (an implicit statement is a single SQL statement, a transaction performed in the

database system inherently includes transaction that only involves a single SQL statement).

As per claim 8, Tada and Gray teach all the claimed subject matters as discussed in claim

1, and further teach performing the end transaction procedure (Tada, Fig. 5, step S14), which

follows execution of the transaction (Tada, Fig. 5, col. 11, lines 30-67).

As per claim 9, Tada and Gray teach all the claimed subject matters as discussed in claim

8, and further teach skipping broadcast of a directive indicating commencement of the end

transaction procedure to the plurality of access modules (Tada, Fig. 5, the end transaction

procedure S14 skips the broadcasting, it just initialize the transaction end indication, Gray, 592-

600, commit_work skips the broadcasting when the log is empty/flushed).

As per claim 10, Tada discloses a method of performing an end transaction procedure in a

database system, comprising:

a first access module in the database system writing an end transaction indication to a

first transaction log portion, the first access module being part of a cluster of access module

(Tada, Fig. 5, step S12, col. 11, lines 57-61).

Tada does not explicitly disclose the first access module sending an end transaction directive to a fallback module associated with the first access module, the fallback module being part of the cluster. Gray teaches the first access module sending an end transaction directive to a fallback module associated with the first access module, the fallback module being part of the cluster.(Gray, page 34, 61-62, 562-576, 943, the end transaction directive will be sent to its replicated copy at the fallback module in a distributed processing environment). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Tada by incorporating a fallback module as disclosed by Gray (Gray, page 34) and sending an end transaction directive to the fallback module (Gray, page 562-576, 943). Because the fallback module stores a replicated data in other database, this provides continuous service even when one copy of data is corrupted, and sending an end transaction directive to the fallback module ensures the data in the fallback module is consistent with the primary copy of data. The ordinary skilled artisan would have been motivated to modify the database system of Tada for the purpose of be able to providing continuous service even when some data is corrupted.

As per claim 11, Tada and Gray teach all the claimed subject matters as discussed in claim 10, and further teach the first access module sends the end transaction directive to the fallback module but not to other access modules in the cluster (Gray, page 34, 556-576, 592-609).

As per claim 12, Tada and Gray teach all the claimed subject matters as discussed in claim 10, and further teach sending the end transaction directive comprises sending an end transaction-part one directive (Gray, page 34, 556-576, 592-609).

As per claim 13, Tada and Gray teach all the claimed subject matters as discussed in claim 12, and further teach the first access module broadcasting an end transaction-part two directive to all access module in the cluster (Gray, page 34, 556-576, 592-609).

As per claim 14, Tada and Gray teach all the claimed subject matters as discussed in claim 10, and further teach the fallback module writing an end transaction indication to a second transaction log portion (Gray, page 34, 556-576, 592-609).

As per claim 15, Tada and Gray teach all the claimed subject matters as discussed in claim 10, and further teach the first access module flushing the first transaction log portion from volatile storage to non-volatile storage (Tada, Fig. 5, lines 11, lines 30-67, step S10).

As per claim 16, Tada and Gray teach all the claimed subject matters as discussed in claim 10, and further teach the first access module flushing the first transaction log portions but the other access modules in the cluster not flushing their respective transaction log portion (Gray, page 34, 556-576, 592-609).

As per claim 17, Tada and Gray teach all the claimed subject matters as discussed in claim 1, and further teach a plurality of storage media, the storage media comprising persistent storage and volatile storage (Tada, Fig. 4, col. 7, line 44 – col. 8, line 67).

As per claim 18, Tada and Gray teach all the claimed subject matters as discussed in claim 17, and further teach a controller adapted to determine if each access module has flushed the transaction log maintained by the access module (Tada, Fig. 5, step S11 and S11-1, Gray, 592-600, commit_work determines whether the transaction logs are empty/flushed).

As per claim 19, Tada and Gray teach all the claimed subject matters as discussed in claim 18, and further teach the controller adapted to skip sending a directive to perform a

transaction log flush if the controller determines that each access module has flushed the

transaction log before the end transaction procedure (Tada, Fig. 5, step S11 and S11-1

determines whether logs are flushed, if flushed, not more flush afterwards. Gray, 592-600,

commit_work determines whether the transaction logs are empty/flushed, if empty/flushed, skips

sending a directive to perform log flush).

As per claim 20, Tada and Gray teach all the claimed subject matters as discussed in

claim 17, and further teach a controller adapted to provide a flush directive (Tada, Fig. 5, S06)

with a message to each of the access modules to perform a last step of the transaction before the

end transaction procedure (Tada, Fig. 5, the end transaction procedure is S14).

As per claim 21, Tada and Gray teach all the claimed subject matters as discussed in

claim 1, and further teach determine that a last step of the transaction involves the plurality of

access modules, wherein the last step is performed before an end transaction procedure (Tada,

Fig. 5, col. 11, lines 30-67, a last step S11 is performed before an end transaction procedure

S14).

As per claim 22, Tada and Gray teach all the claimed subject matters as discussed in

claim 21, and further teach perform the end transaction procedure, wherein the end transaction

procedure follows execution of the last step of the transaction (Tada, Fig. 5).

Claim 23 is rejected on grounds corresponding to the reasons given above for claim 9.

As per claim 24, Tada and Gray teach all the claimed subject matters as discussed in

claim 1, and further teach maintaining a log in volatile storage to track operations performed in

the transaction (Tada, Fig. 4, log 114a and 114b are in volatile storage and tracks operations, col.

7, line 44 – col. 8, line 67); and writing the log to persistent storage before start of an end

transaction procedure (Tada, Fig. 5, step S10, col. 11, lines 30-67, the writing/flush operation

S10 is performed before the end transaction procedure S14).

As per claim 25, Tada and Gray teach all the claimed subject matters as discussed in

claim 24, and further teach wherein writing the log to persistent storage comprises flushing the

log (Tada, Fig. 5, col. 11, lines 30-67).

As per claim 26, Tada and Gray teach all the claimed subject matters as discussed in

claim 24, and further teach maintaining the log comprises maintaining a transaction log (Tada,

col. 7, line 44 – col. 8, line 67).

As per claim 27, Tada and Gray teach all the claimed subject matters as discussed in

claim 24, and further teach performing the end transaction procedure, the end transaction

procedure comprising writing an end transaction indication into the log (Tada, col. 11, line 65 –

col. 12, line 3).

As per claim 28, Tada and Gray teach all the claimed subject matters as discussed in

claim 17, and further teach providing a directive with a message to perform a last step of a

transaction and communicating the directive to the access modules, each access module

responsive to the directive to perform a transaction log flush before performance of an end

transaction procedure (Tada, Fig. 5, col. 10, line 9 – col. 12. line 3, step S06 issues a message to

flush log, step S10 flushes logs, both operations are performed before the end transaction

procedure S14); and determining if each of the access modules has performed a transaction log

flush before start of the end transaction procedure (Tada, Fig. 5, col. 10, line 9 – col. 12. line 3,

step S11 and S11-1 determines whether logs are flushed before the end transaction procedure

S14); the parsing engine adapted to avoid sending a broadcast directive to the access modules to

cause performance of a transaction log flush during the end transaction procedure (Tada, Tada,

Fig. 5, col. 10, line 9 – col. 12. line 3, since the logs are flushed before the end transaction

procedure S14, S14 avoids broadcasting flush message again, it just initialize the transaction end

indication. Gray, 556-576, 592-609, the transaction process manager flushes the logs using the

savepoint before commit_work and avoids broadcasting the flush message if the logs are

empty/flushed in commit_work).

As per claim 29, Tada and Gray teach all the claimed subject matters as discussed in

claim 1, and further teach performing the plural steps prior to performing the end transaction

procedure, and wherein performing the flush of the transaction log comprises performing the

flush of the transaction log in one of the plural steps (Tada, Fig. 5, col. 10, line 9 – col. 12, line 3,

a plurality of steps S02 and S10 are performed before S14. S10 flushes logs. Gray, page 556-

576, 592-609).

As per claim 30, Tada and Gray teach all the claimed subject matters as discussed in

claim 29, and further teach performing, in each of the plural steps, access of relational table data

stored in the database system (Tada, Fig. 5, col. 10, line 9 – col. 12, line 3, S02 read DB, S10

flush log access relation table data. Gray, page 556-576, 592-609).

As per claim 31, Tada and Gray teach all the claimed subject matters as discussed in

claim 30, and further teach performing the flush of the transaction log in one of the plural steps

comprises performing the flush of the transaction log in a last one of the plural steps (Tada, Fig.

5, step S10 perform flush, col. 10, line 9 – col. 12, line 3, Gray, page 556-576, 592-609).

As per claim 32, Tada and Gray teach all the claimed subject matters as discussed in

claim 31, and further teach each access module adding a first entry to the transaction log to redo

the transaction by the access module in case of system failure (Gray, page 556-576, 592-609).

As per claim 33, Tada and Gray teach all the claimed subject matters as discussed in

claim 4, and further teach performing the flush of the transaction log in the end transaction

procedure if the last step is not performed by all of the plurality of access modules (Gray, page

556-576, 592-609, commit_work flushes transaction log if the log is not empty/flushed).

As per claim 34, Tada and Gray teach all the claimed subject matters as discussed in

claim 17, and further teach the access modules to perform a transaction comprising plural steps,

one or more of the access modules adapted to perform the plural steps prior to the end

transaction procedure, and the access modules adapted to perform the flush of the transaction log

in one of the plural steps (Tada, Fig. 5, col. 10, line 9 – col. 12, line 3, step S10 flushes logs).

As per claim 35, Tada and Gray teach all the claimed subject matters as discussed in

claim 34, and further teach the one of the plural steps comprises a last one of the steps (Tada,

Fig. 5, col. 10, line 9 – col. 12, line 3, step S11).

As per claim 36, Tada and Gray teach all the claimed subject matters as discussed in

claim 35, and further teach the transaction log comprises a first entry associated with each access

module to enable a redo of the transaction in case of system failure (Gray, page 556-576, 592-

609).

As per claim 37, Tada and Gray teach all the claimed subject matters as discussed in

claim 36, and further teach a second entry associated with each access module to enable an undo

of the transaction (Gray, page 556-576, 592-609).

As per claim 38, Tada and Gray teach all the claimed subject matters as discussed in claim 34, and further teach a controller to determine whether a last one of the steps involves all the access modules, and in response to determining that the last one of the steps involves all the access modules, the controller to send a directive to all the access modules to perform the flush of the transaction log in the last one of the steps (Tada, Fig. 5, Gray, page 556-576, 592-609).

As per claim 39, Tada and Gray teach all the claimed subject matters as discussed in claim 38, and further teach in response to determining that the last step does not involve all access modules, the controller to send a directive to perform the flush of the transaction log in the end transaction procedure (Tada, Fig. 5, Gray, page 556-576, 592-609).

Claims 40-42 are rejected on grounds corresponding to the reasons given above for claims 29-31.

As per claim 43, Tada and Gray teach all the claimed subject matters as discussed in claim 41, and further teach storing instructions for enabling a processor-based system to cause each access module to add a first entry to the transaction log to redo the transaction by the access module in case of system failure (Gray, 559-561, 567).

Response to Arguments

5.   As per applicant's arguments regarding Tada teaches flush the log to non-volatile storage is performed after the system has issued a transaction-end macro...in other words, in Tada, the writing of a transaction log from volatile storage to non-volatile storage occurs during an end transaction procedure, not before and end transaction procedure have been considered but are not persuasive.   Macro is a predefined sequence of computer instructions in the computer system.

The transaction is not completed at the issue of transaction end macro. The transaction is ended

when the transaction end indication is initialized and set (Tada, col. 11, line 57 – col. 12, line 3).

Clearly, flushing log from volatile to non-volatile storage (Tada, Fig. 5, step S10, col. 11, lines

30-45) is performed before the transaction end procedure (Tada, Fig. 5, step S14, initialize

transaction end indication, col. 11, line 30 – col. 12, line 3). Therefore, the arguments are not

persuasive.

6.   As per applicant's arguments regarding Tada does not teach determining that a last step of

the transaction is performed before the end transaction procedure have been considered but are

not persuasive. Tada teaches a last step of the transaction (Fig. 5, step S11 and S11-1) which

determines whether all logs are flushed. This step is performed before the end transaction

procedure S14.

7.   As per applicant's arguments regarding Tada does not teach avoid sending a broadcast

directive to the access modules to cause performance of a transaction log flush during the end

transaction procedure have been considered but are not persuasive. Tada teaches flushing the

logs at step S10 (Fig. 5) and checking whether all logs are flushed (Fig. 5, step S11 and S11-1).

These steps are performed before the end transaction procedure S14 (Fig. 5). Since the logs are

flushed before the end transaction procedure S14, S14 avoids broadcasting flush message again,

it just initialize the transaction end indication. Also, Gray teaches the transaction process

manager flushes the logs using the savepoint before commit_work. During commit_work, the

transaction process manager avoids broadcasting the flush message since the logs are

empty/flushed (Gray, page 556-576, 592-609). Therefore, the arguments are not persuasive.

8.   As per applicant's arguments regarding Tada does not teach determining if transaction

has been flushed before performing the end transaction procedure have been considered but are

not persuasive. Tada teaches determining if transaction has been flushed before performing the

end transaction procedure (Tada, Fig. 5, col. 11, lines 47-67, in figure 5, step 11 and S11-1

checks whether the log has been flushed before performing the end transaction procedure S14).

9.   As per applicant's arguments regarding Tada does not teach identifying the transaction as

an implicit transaction have been considered but are not persuasive. An implicit transaction is a

single SQL statement. Tada teaches perform database transactions. The database transactions

inherently include transaction that involves a single SQL statement. Therefore, the arguments

are not persuasive.

10.   As per applicant's arguments regarding Tada does not teach performing the end

transaction procedure comprises skipping a broadcast of directive indicating commencement of

the end transaction procedure have been considered but are not persuasive. In Tada, the end

transaction procedure S14 (Fig. 5) just initialize the transaction end indication, it skips

broadcasting. Furthermore, Gray teaches the commit_work skips the broadcasting when the

transaction log is empty/flushed (Gray, page 592-609). Therefore, the arguments are not

persuasive.

11.   As per applicant's arguments regarding Tada does not teach the flushing of transaction

log occurs in one of plural steps each accessing relational table data stored in the database, where

the plural steps are performed prior to the end transaction procedure have been considered but

are not persuasive. Tada (Fig. 5, col. 10, line 9 – col. 12, line 3) teaches performing a plurality

of steps (step S02, S10, S10 flushes the log) before the end transaction procedure (step S14).

These plural steps access the relational table data (S02 read DB and S10 flush log). Therefore

the arguments are not persuasive.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Lyle et al. (US 6,651,073 B1) teach a method and apparatus for insuring database data

integrity without data recovery logging.

Klein et al. (US 6,539,414 B1) teach incorporating collateraland concurrent activity in a

data processing transaction.

Ganesh et al. (US 6,510,421 B1) teach performing 2-phase commit with presumed

prepare.

Breitbart et al. (5,999,931) teach concurrency control protocols for management of

replicated data items in a distributed database system.

Lampson, B. and Lomet, D., "A New Presumed Commit Optimization for Two Phase

Commit", February 10, 1993.

Contact Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Chongshan Chen whose telephone number is (571)272-4031.

The examiner can normally be reached on Monday - Friday (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John E Breene can be reached on (571)272-4107. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

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Chongshan Chen
February 5, 2005
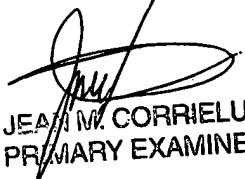
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